

REMARKS

Claims 39 through 68 were presented for examination in the present application. The instant amendment adds new claims 69 and 70 and, thus, claims 39 through 42, 44 through 58, and 60 through 70 are presented for consideration upon entry of the instant amendment.

New claims 69 and 70 find support in original claims 43 and 59, respectively.

Claims 39-42, 44-55, 65, and 66 were rejected under 35 U.S.C. §112, second paragraph. Claim 39 has been amended to render this rejection moot. Specifically, claim 39 has been amended make explicit what had been implicit in the claim. Reconsideration and withdrawal of this rejection are respectfully requested.

Independent claims 39 and 56, as well as dependent claims 40-42, 44-45, 49-50, 53, 54, 58, 60, 64, 66, and 68, were rejected under 35 U.S.C. §103 over U.S. Patent No. 4,917,495 to Steenhoek (Steenhoek) in view of U.S. Patent No. 5,268,749 to Weber. Additionally, dependent claims 46-48, 51, 53, 55, 57, 65, 61-63, and 67 were rejected under 35 U.S.C. §103 over Steenhoek and Weber in further view of one or more of U.S. Patent Nos. 5,619,427 to Ohkubo (Ohkubo), 4,918,321 to Klenk (Klenk), 5,596,412 to Lex (Lex), and 6,163,038 to Chen (Chen).

Independent claim 39 has been amended to recite, in part, that the filter arranged between the light diode and the surface is “for adjusting said emitted light to an aggregate of daylight spectrum and eye sensitivity or nightlight spectrum and eye sensitivity” (emphasis added). Similarly, independent claim 56 has been amended to include, in part, the step of filtering the light “to an aggregate of nightlight spectrum and eye sensitivity”. Support for these amendments can be found in the specification at least at page 21.

Steenhoek discloses a device for making quantified determinations of the quality of a surface. The device is provided with halogen lamps 11. Applicants submit that Steenhoek does not disclose or suggest the use a light diode as claimed. The claimed light diode does not require a light emitting filament like in a halogen lamp and, as a consequence, the positioning of the light diode can be done more precisely.

Notwithstanding and due to the use of the halogen lamp, Steenhoek requires the adjustment of the color temperature in order to have an emitted light with a stable spectrum. For this purpose Steenhoek discloses the use of a blue filter 23a and a red filter 23b being positioned close the illumination source. However, the filters of Steenhoek are simply not positioned between a light diode and the surface as claimed.

Further, the filters of Steenhoek are part of an arrangement for adjusting the color-temperature of the illumination source (d. column 6, line 55, to column 7, line 4). The light emitted from the illumination source which falls through the filters 23a and 23b is directed onto photodiodes 22. Each of these photodiodes 22 produces a voltage signal which is proportional to the lamp emission in the blue and red regions of the spectrum, respectively. A control circuit 25 uses these signals to adjust the lamp current to maintain a fixed ration between the output voltages of the two diodes, thus maintaining the a fixed color temperature (d. column 6, line 66, to column 7, line 4). However, Steenhoek does not disclose or suggest a filter for adjusting the emitted light to an aggregate of nightlight spectrum and eye sensitivity as now claimed.

Independent claim 39 has also been amended to include, in part, "a lens for parallelizing said emitted light that impinges on said surface" and "a lens for focusing said reflected light on said photo sensor". Similarly, independent claim 56 has been amended to recite, in part, the steps of "parallelizing said emitted light before said emitted light impinges on said surface" and "focusing said reflected light on said photo sensor". Support for these amendments can also be found in the specification at least at page 21.

Steenhoek discloses a lens 12 that focuses the light emitted from halogen lamp 11 onto the surface to be determined. The light reflected by the surface is directed into a collecting lens 13, which focuses the light through an entrance slit 15 into a diffraction grating 17 of a monochromator 19 where the light is dispersed and refocused onto a silicon diode array detector 18 with twelve detecting elements 21 (ct. column, 6, lines 9 to 25). However, the lens 12 of Steenhoek simply does not disclose or suggest a lens for parallelizing the emitted light as now claimed. Further, collecting lens 13 of Steenhoek focuses the light through into a diffraction grating 17 and, not, on the photo sensor as now claimed.

Due to the fact that the claimed light diode emits light over its entire surface, it is possible to use the claimed lens for parallelizing the light emitted by the diode, so that the parallelized light can illuminate the surface homogeneously. In contrast, Steenhoek does not disclose or suggest, nor can the light emitted from its halogen lamp, be parallelized as claimed. Specifically, Applicants respectfully submit that due to the fact that the illumination sources used in Steenhoek are lamps with filaments, the light emitted by the lamps has to be focused onto the surface to be determined. If the light emitted by a filament would not be focussed, an inhomogeneous illumination of the surface would take place so that a correct measurement would not be possible. Due to the focusing of the light, it is in turn necessary to use a monochromator 19 where the light is dispersed and then subsequently directed onto a photo sensor array.

Applicants respectfully submit that there is simply no motivation to make the modifications to Steenhoek necessary to result in the device of claim 39 or the method of claim 56. Specifically, one would have to change not only the use of a light diode instead of a halogen lamp, but also the entire arrangement of the device disclosed in Steenhoek in order to come to device of claim 39 and the method of claim 56.

Even if one skilled in the art would have taken into account the use a light diode instead of a halogen lamp, the arrangement for adjusting color-temperature which is mentioned to be a part of the invention disclosed in Steenhoek would become obsolete. Thus, Applicants respectfully submit that Steenhoek teaches away from the proposed modifications

When using light diodes as illumination source, one skilled in the art would also have had to replace the lenses for focusing the emitted light with lenses for parallelizing the light emitted by the light diodes. Steenhoek simply does not disclose, suggest, or provide any motivation for such a modification. Finally, one skilled in the art would have to replace the monochromator of Steenhoek with the claimed focusing lens. However, Steenhoek simply does not disclose or suggest any motivation for such a modification.

Clearly, Steenhoek does not disclose or suggest amended claims 39 and 56. Moreover, Applicants submit that the proposed combinations of Steenhoek with one or more of Weber, Ohkubo, Klenk, Lex, and Chen do not disclose or suggest present claims 39 and 56.

Weber only discloses the use of scatter disk for homogenizing the light emitted by a light source being provided with a filament for emitting light. There is neither a hint to use a light diode in the device disclosed in Steenhoek. Also, Weber cannot give a hint to the expert to use a lens for parallelizing the light emitted by the illumination source in order to homogenize the emitted light since Weber already discloses a solution for this problem, for example the use of a scatter disk or a mirror plate with a grooved surface. The use of this type of equipment, however, makes only sense if an illumination source is used emitting an inhomogeneous light, like a halogen lamp.

Ohkubo only discloses a method for converting actual color signals. From Ohkubo, however, the expert cannot take any information, how to arrange illumination sources, lenses or photo sensors, which type of illumination source or lens is usable or

which type of filter should be used. Consequently, Ohkubo does not disclose or suggest the device of amended claims 39 and 56.

Klenk only discloses the use of strips of light to illuminate a surface, but cannot give any information with respect to the arrangement of the illumination sources, lenses or photo sensors. Consequently, Klenk does not disclose or suggest the device of amended claims 39 and 56.

Lex discloses the use of a laser beam for illumination the surface to be determined and can, consequently, give no hint to the expert, to use a light diode or lenses for parallelizing the emitted light before hitting the surface since a laser beam is parallelized light beam. Further, laser beams do have only a very restricted range of wavelengths. Consequently, Lex does not disclose or suggest the device of amended claims 39 and 56.

Chen relates to the manufacturing of light diodes and has nothing to do with colorimeters. Thus, there would be no reason for the expert to search for a solution in this technical field. But even if the expert would have taken into account Chen, there is no hint at all in Chen, which type of lens or which type of filter can be used and how these optical elements have to be arranged in order to come to result in the device of amended claims 39 and 56.

As such, independent claims 39 and 56, as well as claims 40 through 42, 44 through 55, 57 through 58, and 60 through 70 that depend therefrom, are believed to be in condition for allowance. Reconsideration and withdrawal of the rejections are respectfully requested.

In view of the above, it is respectfully submitted that the present application is in condition for allowance. Such action is solicited.

If for any reason the Examiner feels that consultation with Applicants' attorney would be helpful in the advancement of the prosecution, the Examiner is invited to call the telephone number below.

Respectfully submitted,



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